SEQUENCE LISTING

<110> The Regents of the University of Colorado, a Body Corporate
       Kim, Soo Hyun
       Dinarello, Charles A.
       Azam, Tania

<120> Compositions and Methods for Regulation of Tumor Necrosis
       Factor Alpha

<130> UTC 08870

<140> PCT/US2004/037578
<141> 2004 11 12

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<170> PatentIn version 3.2

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Glu Ser Gly Arg Gly Gln Val Met Ser Ser Leu Ala Glu Leu Glu Asp
        35                  40                  45


Asp Phe Lys Glu Gly Tyr Leu Glu Thr Val Ala Ala Tyr Tyr Glu Glu
        50                  55                  60


Gln His Pro Glu Leu Thr Pro Leu Leu Glu Lys Glu Arg Asp Gly Leu
65                  70                  75                  80


Arg Cys Arg Gly Asn Arg Ser Pro Val Pro Asp Val Glu Asp Pro Ala
                85                  90                  95


Thr Glu Glu Pro Gly Glu Ser Phe Cys Asp Lys Ser Tyr Gly Ala Pro
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                20   25   30

Glu Ser Gly Arg Gly Gln Val Met Ser Ser Leu Ala Glu Leu Glu Asp
            35   40   45

Asp Phe Lys Glu Gly Tyr Leu Glu Thr Val Ala Ala Tyr Tyr Glu Glu
        50   55   60

Gln His Pro Glu Leu Thr Pro Leu Leu Glu Lys Glu Arg Asp Gly Leu
65   70   75   80

Arg Cys Arg Gly Asn Arg Ser Pro Val Pro Asp Val Glu Asp Pro Ala
            85   90   95

Thr Glu Glu Pro Gly Glu Ser Phe Cys Asp Lys Val Met Arg Trp Phe
            100   105   110

Gln Ala Met Leu Gln Arg Leu Gln Thr Trp Trp His Gly Val Leu Ala
        115   120   125

Trp Val Lys Glu Lys Val Val Ala Leu Val His Ala Val Gln Ala Leu
    130   135   140

Trp Lys Gln Phe Gln Ser Phe Cys Cys Ser Leu Ser Glu Leu Phe Met
145   150   155   160

Ser Ser Phe Gln Ser Tyr Gly Ala Pro Arg Gly Asp Lys Glu Glu Leu
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Val Ser Ala Cys Asp Thr Glu Asp Thr Val Gly His Leu Gly Pro Trp
            35                  40                  45

Arg Asp Lys Asp Pro Ala Leu Trp Cys Gln Leu Cys Leu Ser Ser Gln
    50                  55                  60

His Gln Ala Ile Glu Arg Phe Tyr Asp Lys Met Gln Asn Ala Glu Ser
65                  70                  75                      80

Gly Arg Gly Gln Val Met Ser Ser Leu Ala Glu Leu Glu Asp Asp Phe
                85                  90                  95

Lys Glu Gly Tyr Leu Glu Thr Val Ala Ala Tyr Tyr Glu Glu Gln His
            100                 105                 110

Pro Glu Leu Thr Pro Leu Leu Glu Lys Glu Arg Asp Gly Leu Arg Cys
            115                 120                 125

Arg Gly Asn Arg Ser Pro Val Pro Asp Val Glu Asp Pro Ala Thr Glu
    130                 135                 140

Glu Pro Gly Glu Ser Phe Cys Asp Lys Val Met Arg Trp Phe Gln Ala
145                 150                 155                     160

Met Leu Gln Arg Leu Gln Thr Trp Trp His Gly Val Leu Ala Trp Val
            165                 170                 175

Lys Glu Lys Val Val Ala Leu Val His Ala Val Gln Ala Leu Trp Lys
            180                 185                 190

Gln Phe Gln Ser Phe Cys Cys Ser Leu Ser Glu Leu Phe Met Ser Ser
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Gln Lys Cys Ser Glu Pro Gln Ser Ser Lys
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            20              25              30

Leu Ala Glu Leu Glu Asp Asp Phe Lys Glu Gly Tyr Leu Glu Thr Val
        35              40              45

Ala Ala Tyr Tyr Glu Glu Gln His Pro Glu Leu Thr Pro Leu Leu Glu
    50              55              60

Lys Glu Arg Asp Gly Leu Arg Cys Arg Gly Asn Arg Ser Pro Val Pro
65              70              75              80

Asp Val Glu Asp Pro Ala Thr Glu Glu Pro Gly Glu Ser Phe Cys Asp
            85              90              95

Lys Val Met Arg Trp Phe Gln Ala Met Leu Gln Arg Leu Gln Thr Trp
            100             105             110

Trp His Gly Val Leu Ala Trp Val Lys Glu Lys Val Val Ala Leu Val
        115             120             125

His Ala Val Gln Ala Leu Trp Lys Gln Phe Gln Ser Phe Cys Cys Ser
    130             135             140

Leu Ser Glu Leu Phe Met Ser Ser Phe Gln Ser Tyr Gly Ala Pro Arg
145             150             155             160

Gly Asp Lys Glu Glu Leu Thr Pro Gln Lys Cys Ser Glu Pro Gln Ser
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gacctccagc ctgcagatcg tgagggaaga gacgtcttcg acttagggcc ccttgtcgtg     240
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atacttacct ggcaggggag ataccatgat cacgaaggtg gttttcccag ggcgaggctt       180

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<400>    13

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<213> Homo sapiens

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Lys Asp Pro Ala Leu Trp Cys Gln Leu Cys Leu Ser Ser Gln
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<213> Homo sapiens

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<213> Equus caballus

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                20   25   30

Ser Gln Gly Glu Glu Gln Val Asp Leu Gly Leu Glu Asp Leu Glu Glu
        35   40   45

Lys Phe Ser Glu Asn Ile Leu Asp Ala Val Glu Glu His His Gln Lys
    50   55   60

Asn Asn Ser Glu Ser Ala Pro Leu Leu Pro Asp Val Lys Pro Arg Leu
65   70   75   80

Arg Arg Arg Ala Gln Lys Ser Ser Val Leu Asn Pro Glu Pro Glu Gly
                85   90   95

Pro Gly Ile Leu Gln Val Glu Ala Leu Glu Ala Pro Glu Pro Glu Glu

- 10 -

Ser Phe Trp Val Arg Ala Trp Arg Ser Phe Met Gly Met Leu Gln Arg
115 120 125

Leu Lys Gln Arg Trp Gln Ala Val Leu Ala Trp Val Arg Glu Lys Val
130 135 140

Ala Ala Gly Trp Gln Ala Leu Cys Ser Val Ala Gln Ser Ile Asn Ser
145 150 155 160

Val Leu Glu Ser Phe Cys Ser Tyr Met Ala Gly Leu Phe Arg Tyr His
165 170 175

Ile Gln Val

<210> 17
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<213> Bos taurus

<400> 17

Met Cys Phe Ala Lys Gly Val Pro Tyr Asp Gln Ala Ser Leu Arg Ser
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Ile Met His Lys Arg Val Asp Asp Phe Cys Asp Lys Met Gly Asn Glu
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35 40 45

Leu Ser Glu Asp Ile Cys Glu Phe Ile Glu Asp His Ile Gln Glu Asn
50 55 60

Leu Pro Glu Ser Leu Gln Glu Ser Ser Pro Leu Leu Gln Glu Ala Arg
65 70 75 80

Gln Gly Val Arg Arg Arg Ile Gln Arg Pro Ser Val Ser Ala Arg Leu
85 90 95

Glu Val Gln Asn Pro Glu Glu Ser Ile Trp Ala Arg Ala Leu Gly Arg
100 105 110

Phe Gln Val Ile Leu Gln Ser Leu Gln Gln Arg Cys Trp Asp Ala Leu
115 120 125

Thr Trp Leu Arg Glu Lys Ala Val Thr Phe Leu Glu Ala Ile Cys Ser

Val Val Lys Ala Val Leu Gly Val Leu Thr Asp Phe Cys Ser Ser Val
145   150   155   160

Gly Gln Leu Phe Gly Asn Leu Ile Gln Val
                165   170

<210> 18
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<213> Equus caballus

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            20   25   30

Ser Gln Gly Glu Glu Gln Val Cys Gln Cys Ala Pro Thr Pro Cys Ser
        35   40   45

Arg Asn Leu Gly Gly Arg Val Val Thr Met Thr Met Arg Arg Lys Asn
    50   55   60

Val Pro Pro Gln Val Asp Leu Gly Pro Leu Thr Ser Pro Phe Ser Gln
65   70   75   80

Arg Thr Phe Arg Ser Asp Leu Cys His Leu Pro Thr Leu Asp Leu Ser
            85   90   95

Leu Thr Thr Ser Leu Thr Ser Leu Leu Cys Thr Ala Trp Pro Pro Cys
            100   105   110

Pro Pro Cys Thr Ser Cys Ser Gly Phe Leu Leu Gln Val
            115   120   125

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<213> Equus caballus

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gacgatgagg aggaagaacg tgccacctca ggtcgattta ggccctttga cgtccccctt   300

ttcacagaga accttcagaa gtgacctttg ccacctgcct acccttgacc tgtccttgac   360

cacctccctc acctccttgc tgtgcacagc ctggccaccc tgcccaccat gcacttcctg   420

ctcaggtttc cttctgcagg tctgacttgt ggctccagcg catatgtctt aataaagttg   480

tg   482

<210>   20
<211>   815
<212>   DNA
<213>   Equus caballus

<400>   20
ctgagaggcc cttggggcag gcacagcccc tggaatcctg agctgccatg ggctacccca   60

agacgtccag agaagacaat gaacgttgga agatccgatt tcacagcact ttagaccggt   120

ggcttgatga tatcgaagtt caatcccaag gagaggaaca ggtcgattta ggcctagaag   180

acctggagga aaaattcagt gaaaacattc ttgacgccgt ggaggagcac catcagaaga   240

acaactcaga atctgcgcct ttacttcctg acgtgaagcc caggttacgt cgcagagctc   300

agaagtcctc tgtcctcaac cctgaacctg agggtccagg gatcctgcaa gttgaggctc   360

tagaggcacc cgagcctgaa gaaagctttt gggtcagagc atggaggtcg ttcatgggga   420

tgctacagcg actgaagcag aggtggcagg ctgtactggc ctgggtgcga gagaaggtgg   480

ctgctggctg gcaggcccta tgcagtgtgg cccagtccat taatagtgtg cttgagagtt   540

tctgctccta tatggctggg ttgtttaggt accacatcca ggtctagggg gccccatggg   600

gtccaggagg ggtagccaca ccttgcagcc ctttgacgtc ccccttttca cagagaacct   660

tcagaagtga cctttgccac ctgcctaccc ttgacctgtc cttgaccacc tccctcacct   720

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tgcaggtctg acttgtggct ccagcgcata gtctt   815

<210>   21
<211>   724
<212>   DNA
<213>   Bos taurus

<400>   21
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accctaagcc accatgtgct cgctaaggg agtcccatat gaccaggctt ctctgaggtc   120

cataatgcac aaacgggtgg atgatttctg tgataagatg ggaaatgaac cagaagaagc   180

acagatggag gcagccctag atgagacgga ggagggactc agcgaggaca tctgtgaatt ·   240

catagaagat cacattcaag agaaccttcc cgaatccctg caggagtcca gtcccttgct   300

tcaggaagca cggcaaggag tacgccgcag aatccagaga ccttcagtct ctgcccgtct   360

ggaggtccag aatccggaag agagcatctg ggccagagcc ctggggaggt tccaagtaat   420

tctgcagagt ctccagcagc ggtgttggga tgcgctcacc tggctgcggg agaaggcggt   480

gaccttcctg gaggccatct gcagtgtggt gaaggccgtc ttgggagtgc tgacggattt   540

ctgctcctct gtggggcagc tcttcggaaa cctcatccag gtctaggagc cgcaggtggt   600

tctggaggaa ctcctcctca tctaggaggc cctgcaccat ccccttccca gaaaccatct   660

tgtgaagcga cctttgcact cctgctcacc cttgacccat cctttaactg ccctcacctc   720

ctgt   724

<210> 22
<211> 218
<212> PRT
<213> Bos taurus

<400> 22

Met Cys Phe Thr Lys Arg Asp Pro Arg Val Leu Ala Ser Phe Arg Val
1   5   10   15

Leu Met Val Arg Ser Ser Phe Pro Arg Ile Ala Gly Val Arg Glu Ala
            20   25   30

Trp Val Leu Leu Gly Glu Ala Glu Asn Ile Leu Ala His Leu Gly Pro
        35   40   45

Ser Arg Glu Lys Asn Arg Asp Ser Phe Thr Gln Val His Leu Cys Ser
    50   55   60

Gln His Asn Leu Val Asp Glu Phe Phe Asp Thr Met Glu Asn Glu Pro
65   70   75   80

Glu Gly Ala Gln Met Glu Ala Val Leu Ala Glu Thr Lys Glu Lys Phe
                85   90   95

Ile Lys Asp Ala Phe Lys Val Met Asp Asn His Ile Gln Glu Asn Ser
                100   105   110

Pro Glu Thr Leu Lys Glu Ser Ser Pro Leu Leu Gln Glu Ala Arg Gln
            115   120   125

Glu Val Arg Cys Arg Ile Gln Arg Arg Ser Val Ser Thr Ser Leu Glu
    130   135   140

Val Gln Asn Pro Glu Glu Ser Ile Trp Ala Arg Ala Leu Arg Gln Phe
145   150   155   160

Leu Gly Ile Leu Gln Ser Phe Leu Ser Gly Cys Arg Asp Ala Leu Thr

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Trp Leu Trp Glu Lys Ala Ala Ala Cys Leu Gln Ala Ile Cys Ser Ala
     180   185   190

Val Glu Ala Leu Trp Glu Val Leu Thr Asp Phe Cys Ser Phe Val Gly
   195   200   205

Gln Leu Leu Cys Arg Ser Leu Ile Gln Val
  210   215

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<210>   23
<211>   863
<212>   DNA
<213>   Bos taurus

<400>   23
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caccatgtgc ttcactaaga gagacccacg tgtcctggct tctttcaggg tgttaatggt     120

aagaagctca tttccacgta tagctggggt tcgggaggcc tgggttctgc tgggtgaagc     180

tgagaacatt ctggcccact tgggacccag cagggagaag aaccgagatt cttttactca     240

agtccatctc tgttcacagc acaaccttgt agatgaattt ttcgatacaa tggaaaatga     300

accagaagga gcacagatgg aggcagtcct agcagagact aaggagaaat tcatcaagga     360

cgcctttaaa gtcatggata atcacattca agagaacagt cccgaaaccc tgaaggagtc     420

cagtcccttg cttcaggaag cacggcaaga agtacgctgc agaatccaga gacgctccgt     480

ctccacctct ctggaggtcc agaatccgga agagagcatc tgggccagag ccctgcggca     540

gttcttgggc attctgcaga gtttcctgtc cgggtgtcgg gatgcgctca cctggctgtg     600

ggagaaggcc gcggcctgcc tacaggccat ctgcagtgcg gtggaggccc tctgggaagt     660

gctcacggat ttctgctcct ttgttgggca gctcttatgc agaagcctca tccaggtcta     720

agagcctcac atggttctgg aggagcccca cctcattcag aaggccctgt acgatgccct     780

tcccggaaac catcttctga agcgaccttt accctcctgc tcacccttga cccatccttt     840

aactgccctc ccctcctgtc ctg                                             863

<210>   24
<211>   127
<212>   PRT
<213>   Ovis aries

<400>   24
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Met Cys Phe Ala Arg Gly Val Pro His Asp Gln Ala Ser Leu Arg Ser
1   5   10   15

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Met Leu His Thr Trp Val Asp His Val Cys Asp Lys Met Gly Asn Glu
             20                25                30

Pro Glu Glu Ala Gln Met Glu Ala Ala Leu Ala Glu Met Glu Glu Glu
             35                40                45

Leu Ser Lys Asp Val Cys Glu Ser Trp Lys Ile Thr Phe Lys Arg Thr
     50                55                60

Phe Pro Asn Pro Cys Arg Ser Pro Val Pro Cys Phe Arg Lys Arg Ser
65                   70                75                80

Lys Lys Tyr Ala Ala Glu Ser Arg Asp Pro Gln Ser Leu Pro Val Trp
                 85                90                95

Arg Thr Arg Asn Arg Lys Arg Ala Ser Gly Pro Glu Pro Cys Gly Gly
             100               105               110

Ser Glu Val Phe Cys Gly Val Ser Gly Ser Gly Val Ala Met Tyr
             115               120               125
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<210> 25
<211> 811
<212> DNA
<213> Ovis aries

<400> 25

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atctcagatc ccagccggag gaccctaatc caccatgtgc ttcgctaggg gagtcccaca     120

tgaccaggct tctctgagga gcatgctgca cacctgggtg gatcatgtct gtgataagat     180

gggaaatgaa ccagaagaag cacagatgga ggcagcccta gcagagatgg aggaggaact     240

cagcaaggat gtctgtgaat catggaagat cacattcaag agaaccttcc cgaatccctg     300

caggagtcca gtcccttgct tcaggaagcg cagcaagaag tacgccgcag aatccagaga     360

ccctcagtct ctgcctgtct ggaggaccag aaaccggaag agagcatctg gccagagcc      420

ctgcggcggt tccgaggttt tctgcggagt ctctggcagc ggtgttgcga tgtactgacc     480

tggctgcagg agaaggcggc ggcctgcctg gaggccgtct gcagtgcggt gaagaccatc     540

tggggagtgc tgacggattt ctgctcctct gtggggcagc tcttcagaaa cctcatccag     600

gtctaggagc cccaggtcgt tcttgaggaa ctgctcctca tctagaaggc cctgcacaat     660

ccccttccca gaaaccatct ctgaagcga cctttaccct cctgttcacc cttcaccaat     720

cctttaactg ccctcacctc ctgtctgcag ggacgacacc acaacatcaa gccaggtttc     780

ccttctccaa gtctgacccg tctgtcaggg a                                   811
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<210> 26
<211> 141
<212> PRT
<213> Sus scrofa

<400> 26

Met Arg Gly Val Ser Ala Thr Arg Thr Leu Pro Lys Ala Gly Pro Gln
1   5   10   15

Pro Arg Ser Gly Leu Gly Leu Pro Leu Pro Arg Arg Val Pro Glu Pro
                20   25   30

Pro Pro Ile Pro Ala Glu Ser Ser Pro Leu Leu Asn Glu Val Arg Gln
            35   40   45

Gly Val Arg Ser Arg Val Arg Arg Pro Pro Gly His Asn Gln Pro His
    50   55   60

Tyr Ala Leu Ala Val Arg Glu Pro Arg Gln Ser Thr Phe Arg Arg Ile
65   70   75   80

Leu Glu Leu Phe Glu Glu Met Leu Lys Arg Leu Gln Gln Arg Trp Arg
                85   90   95

Gly Ala Leu Ala Trp Val Gln Glu Arg Ala Ala Ala Cys Phe Arg Gly
            100   105   110

Leu Cys Arg Ala Leu Glu Ala Phe Trp Ser Leu Val Gln Ser Phe Cys
            115   120   125

Ser Ser Met Gly His Ala Phe Gly Ser Val Ile Gln Val
        130   135   140

<210> 27
<211> 603
<212> DNA
<213> Sus scrofa

<400> 27
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ggggctgttg gcaggaaagc agcctgtgtc caaggcgggg catgaggggg gtgtctgcca   120

ccaggactct cccaaaggca gggcctcagc caaggtcagg actggggctg cctctcccca   180

ggcgggtccc tgaaccaccc cccatccctg cagaatccag tcctctgctc aacgaagtcc   240

ggcagggagt ccgttctaga gtccgaaggc ctcctggcca caaccagcca cattatgcgc   300

tagcggtccg ggagcccagg cagagcactt tcagacgcat ccttgagctg tttgaggaaa   360

tgctgaagcg cctgcagcag aggtggaggg gtgccctggc ttgggtgcag gaaagggctg   420

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ctgcctgctt ccggggcttg tgcagggccc ttgaagcttt ctggagcctg gtgcagagtt      480

tttgctcctc catggggcac gccttcggga gtgtcatcca ggtctaaggt gctccaggtg      540

aaataagagt ttctagagca caacctcccc ctgccttggc taaaaaggca gctgtaagcc      600

ttt                                                                    603
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